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10/712,685

11/13/2003

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07/05/2006

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EXAMINER

DRODGE, JOSEPH W

ART UNIT

PAPER NUMBER

1723

DATE MAILED: 07/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/712,685

Applicant(s)

FREYDINA ET AL.

Examiner

Joseph W. Drodge

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 23-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 23-26 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0506.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3 and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hark patent 4,808,287 in view of Batchelder et al patent 6,126,805 (both newly cited). Hark discloses a system for producing treated water comprising introduction of a

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municipal water supply stream into a point of entry that may be considered to be the inlet to prefilter 1, intermediate treatment means of carbon filters and reverse osmosis units, and removal of undesirable species in electrodialysis (EDI) unit 9. It is stated that the voltage is controlled by a controller and electric current periodically reversed for the purpose of cleaning off contaminants that deposit on the electrodes (column 4, lines 38-50). Treated water is then distributed to points of use through pumps 23 and 25.

The claims all differ in requiring that the electrical current is maintained below a limiting current density to suppress hydroxyl ion generation. Batchelder teaches that EDI-containing water treatment systems are operated near or below the limiting current density, sometimes in combination with reversal of direction of the electric current (as in Batchelder) in order to mitigate the precipitation and deposition of minerals to contact surfaces (column 1, line 62-column 2, line 19 and column 4, line 42-column 5, line 2, etc.) Such actions are taught as reducing "water splitting" or formation of hydroxyl ions. It is noted that the water treated by Hark contains minerals among other contaminants (Hark at column 2, lines 33-45).

Thus, it would have been obvious for one of ordinary skill in the art to have controlled the EDI process in the Hark system by operating near or below the limiting current density to minimize water splitting, or formation of hydroxyl ions, as taught by Batchelder, to further limit the amount of precipitation occurring on the EDI surfaces, so as to optimize the EDI operation in removal of salts and other contaminants.

For claims 2,8,9,12 the treated water is stored in reservoirs 22 and 24 under some degree of pressure may be pressurized , by way of pressure imparted by

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upstream pumps 7 and 19-21 and the reservoirs or tanks being maintained full of water (Hark at column 5, lines 44-46).

Claims 4-7 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hark in view of Batchelder as applied to claims 1 and 11 above, and further in view of Rela patent 6,607,668 of record. These claims further differ in requiring measuring of at least one water property and controlling at least the EDI device based on such property. However, Rela teaches a water treatment system that includes prefilter, reverse osmosis and use of an EDI unit such as in Hark and in which various water properties are sensed/measured and sensed values are used by the controller to control flow rates of raw water, flow rates of the water being distributed to end use points, amount of current applied to the electrodeionization device and other system parameters (col. 4, l 43-67, col. 10. l 28-40). It would have been also obvious to one of ordinary skill in the art to have incorporated the monitoring and control taught by Rela, into the Hark system, so as to optimize overall performance of the water treatment system.

Claims 17,18, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hark in view of Batchelder and in view of Rugh patent 4,102,752.

Hark discloses a system for producing treated water comprising introduction of a municipal water supply stream into a point of entry that may be considered to be the inlet to prefilter 1, intermediate treatment means of carbon filters and reverse osmosis units, and removal of undesirable species in electrodialysis (EDI) unit 9. It is stated that

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the voltage is controlled by a controller and electric current periodically reversed for the purpose of cleaning off contaminants that deposit on the electrodes (column 4, lines 38-50). Treated water is then distributed to points of use through pumps 23 and 25.

The claims all differ in requiring that the electrical current is maintained below a limiting current density to suppress hydroxyl ion generation. Batchelder teaches that EDI-containing water treatment systems are operated near or below the limiting current density, sometimes in combination with reversal of direction of the electric current (as in Batchelder) in order to mitigate the precipitation and deposition of minerals to contact surfaces (column 1, line 62-column 2, line 19 and column 4, line 42-column 5, line 2, etc.) Such actions are taught as reducing “water splitting” or formation of hydroxyl ions. It is noted that the water treated by Hark contains minerals among other contaminants (Hark at column 2, lines 33-45).

Thus, it would have been obvious for one of ordinary skill in the art to have controlled the EDI process in the Hark system by operating near or below the limiting current density to minimize water splitting, or formation of hydroxyl ions, as taught by Batchelder, to further limit the amount of precipitation occurring on the EDI surfaces, so as to optimize the EDI operation in removal of salts and other contaminants.

These claims also differ in requiring a reservoir system “fluidly connected” to the point of entry. Rugh explicitly teaches use of reservoirs for storing municipal water supplies (column 1, lines 30-55). It would have been obvious that the municipal water supply disclosed by Hark contains or is fluidly connected to at least one reservoir as in

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Rugh, in order to maintain suitable water pressure, and ensure an adequate amount of water as needed by users and distribution points.

For claims 21, the treated water is stored in reservoirs 22 and 24 under some degree of pressure may be pressurized, by way of pressure imparted by upstream pumps 7 and 19-21 and the reservoirs or tanks being maintained full of water (Hark at column 5, lines 44-46).

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hark in view of Batchelder and Rugh as applied to claim 17 above, and further in view of Rela.

These claims further differ in requiring measuring of at least one water property and controlling at least the EDI device based on such property. However, Rela teaches a water treatment system that includes prefilter, reverse osmosis and use of an EDI unit such as in Hark and in which various water properties are sensed/measured and sensed values are used by the controller to control flow rates of raw water, flow rates of the water being distributed to end use points, amount of current applied to the electrodeionization device and other system parameters (col. 4, l 43-67, col. 10. l 28-40). It would have been also obvious to one of ordinary skill in the art to have incorporated the monitoring and control taught by Rela, into the Hark system, so as to optimize overall performance of the water treatment system.

Newly submitted claims 23-26 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 23-26 are directed to a method and apparatus of recycling water from and to a water reservoir,

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classifiable in class 210, subclasses 805 or 194, and would concern a new search in areas unrelated to that needed for the other claims and distinct different issues, since none of the other claims of record concern such recycling.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 23-26 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at telephone number 571-272-1140. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached at 571-272-1151. The fax phone number for the examining group where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

June 29, 2006


JOSEPH DRODGE
PRIMARY EXAMINER